Levees – What You Should Know to Manage Your Risk

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U.S. Army Corps of Engineers
Rock Island District

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US Army Corps of Engineers
BUILDING STRONG®

U.S. Army Corps of Engineers Flood Damage Reduction Services

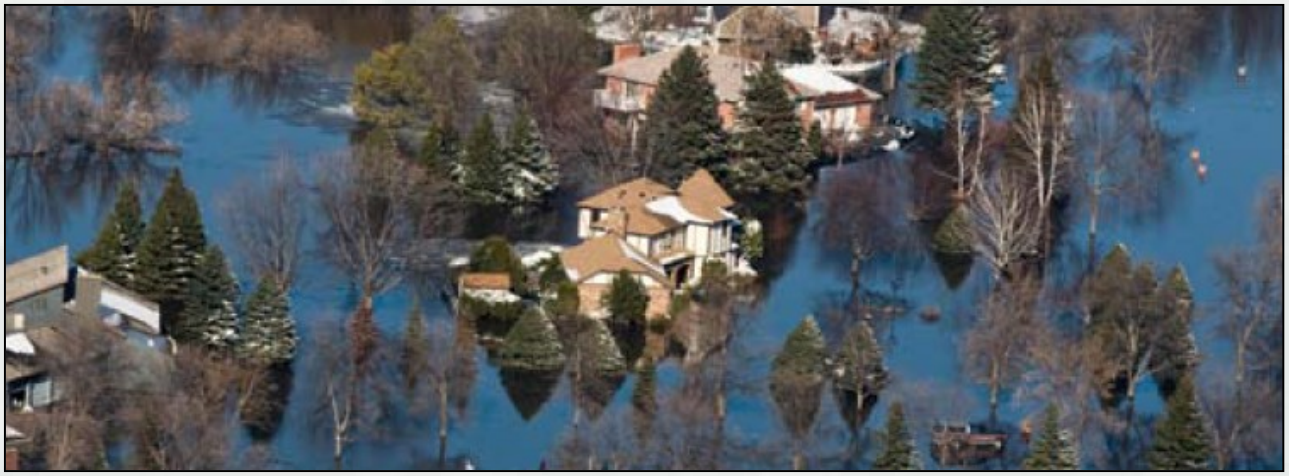
- Levee Rehabilitation and Inspection Program
- Flood Damage Reduction Project Construction
- Emergency Response
- Levee Certification
- Flood Risk Management and Coordination
- **Flood Risk Communication**

You Live Behind a Levee
How Safe are You From Floods?

Levees are built to reduce flood risk, but…

- What does it mean to live behind a levee?
- How much protection does a levee provide?
- What should you know to remain as safe as possible

Four Essential Levee Facts



1. Flooding will happen.
2. No levee is flood-proof.
3. Risks associated with flooding vary.
4. Actions taken now will save lives and property.

1. Flooding *will* happen.

How flood size is defined

- Using historical data
- Estimate percent chance of flood occurring
- 10 year flood = 10%-annual-chance-flood
- 100-year flood = 1% chance of flood occurring each year
- 500-year flood = 0.2% chance each year

1. Flooding *will* happen.

Levee Protection

- Levee protection is described in terms of flood size
- 100-year levee = just less than 1% chance of flooding each year
- 100-year levee = 26% chance of flooding over 30 years

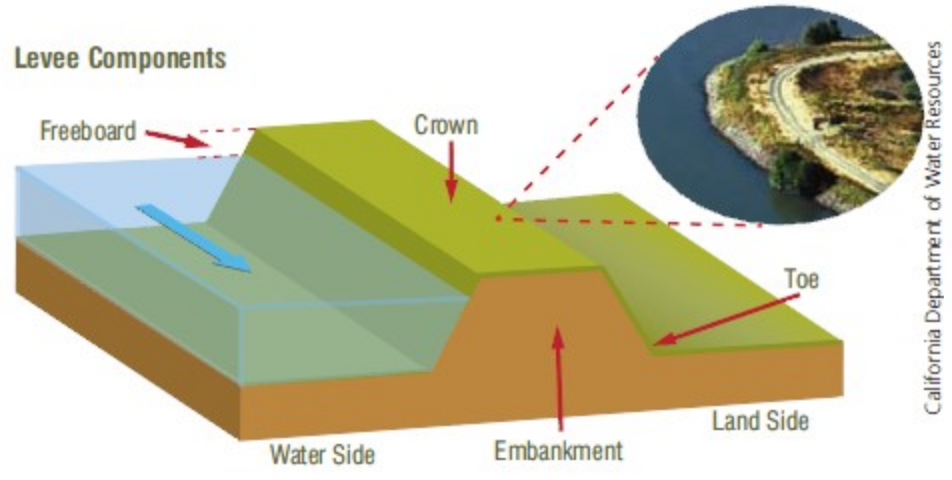
Questions you should ask

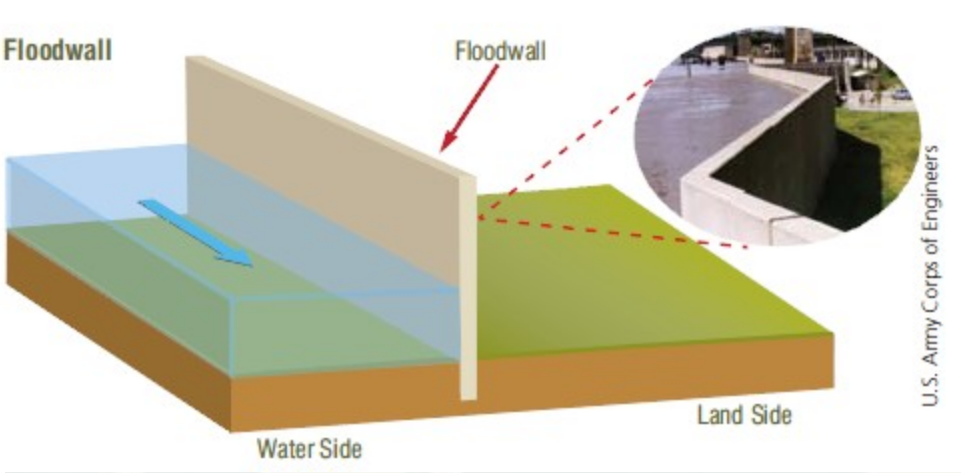
- Where are nearby levees located?
- What size of flood is my levee designed for?
- What is the National Weather Service flood forecast for my area?

2. No levee is flood-proof.

What is a levee?

- A man-made structure engineered to contain, control, or divert the flow of flood water





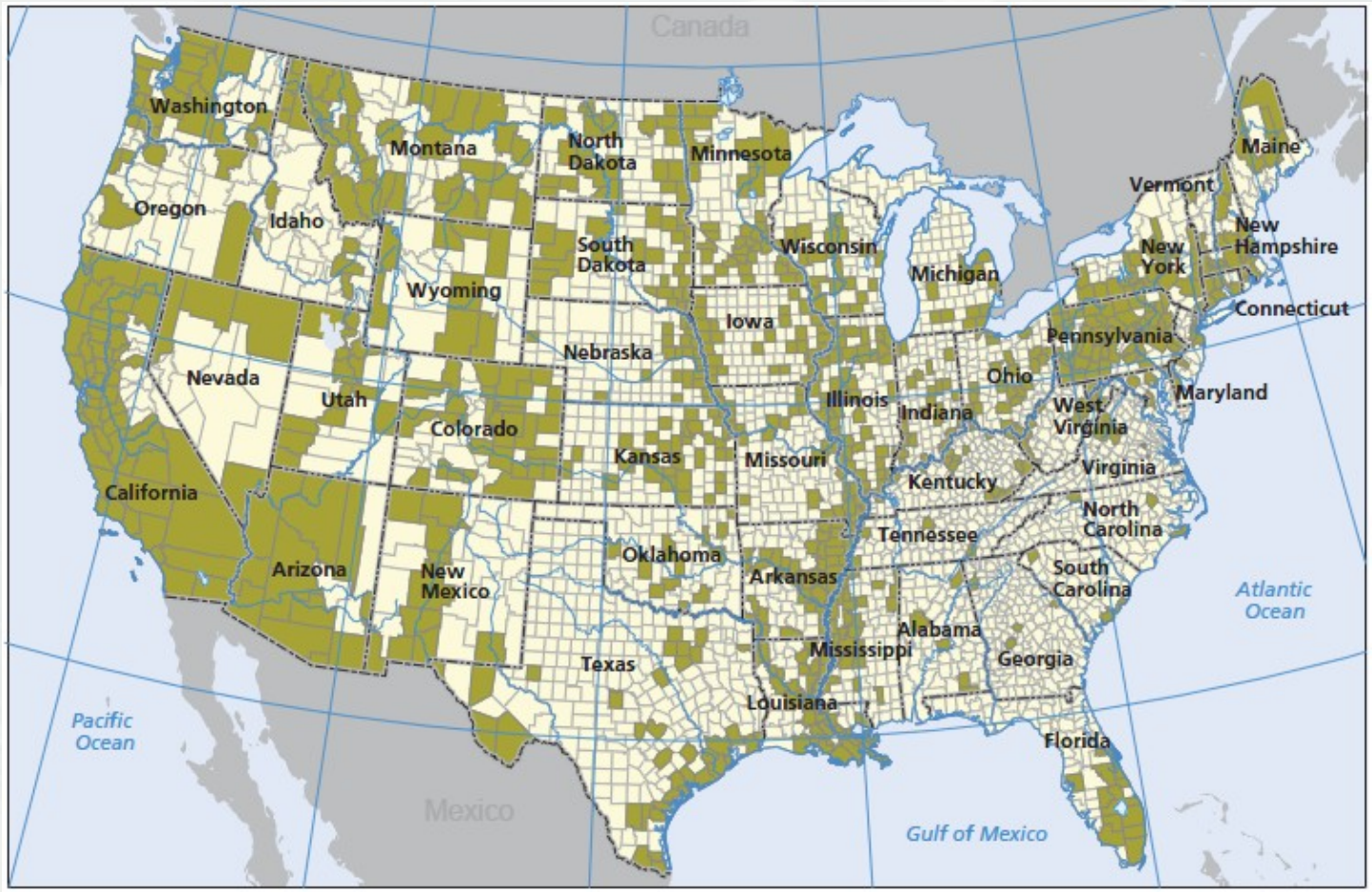
2. No levee is flood-proof.

Where are levees located?

- Most originally built to protect farmland
- With development, migrated to protecting homes
- 100,000 miles of levees nation-wide
- Most locally owned and many near large rivers
- 43% of U.S. population live in leveed counties

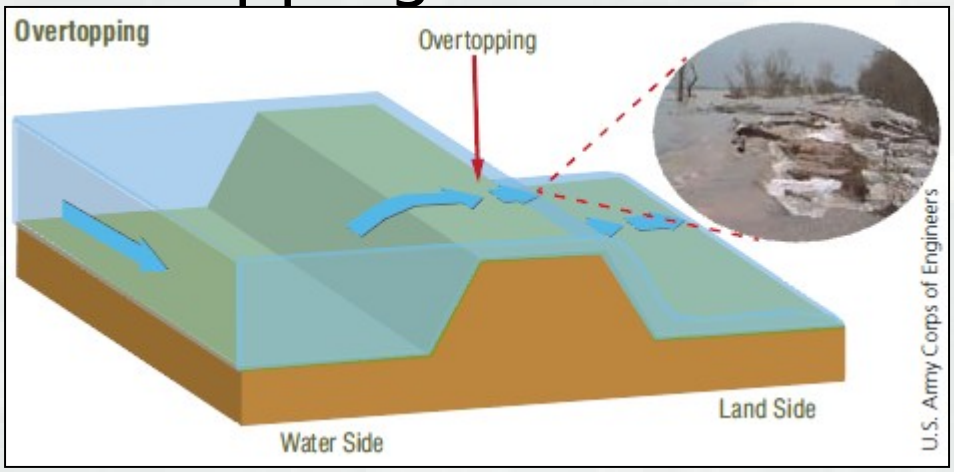
2. No levee is flood-proof.

Where are levees located?



2. No levee is flood-proof.

Overtopping: When a flood is too



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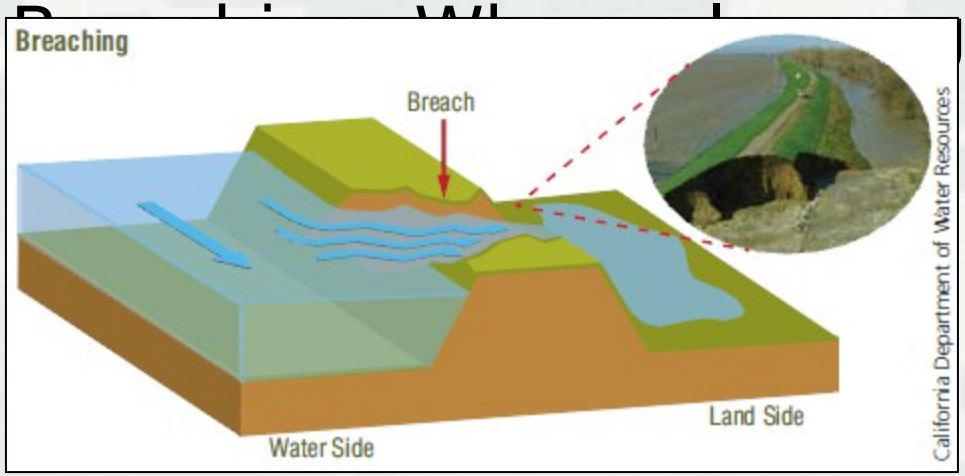
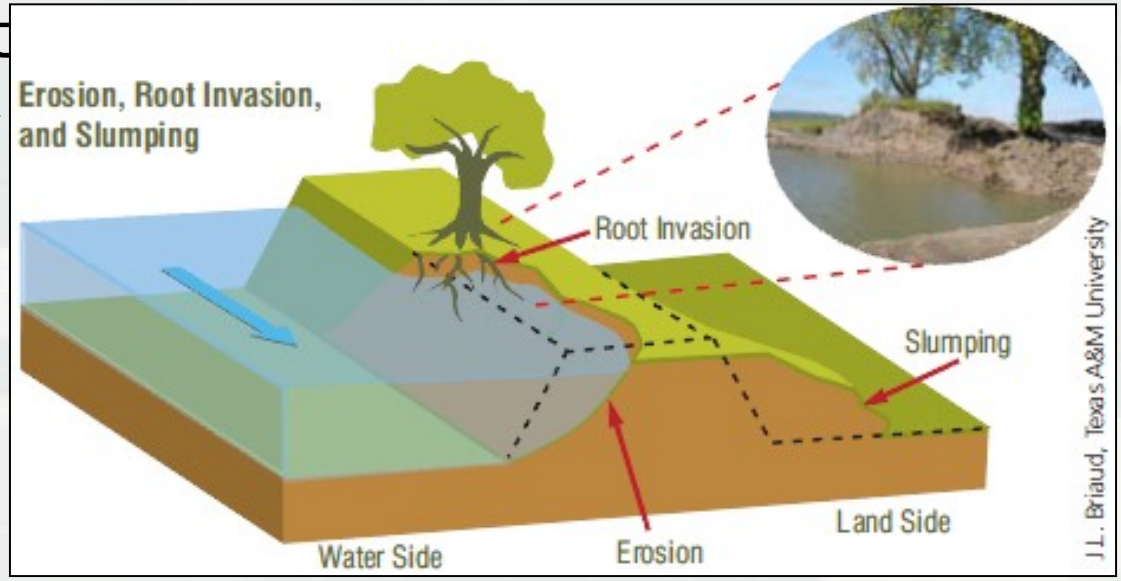


2. No levee is flood-proof.

Other signs of trouble

- Levee inspectors assess levee conditions annually to identify potential problems
  - Unwanted vegetation and debris
  - Encroachment
  - Slope stability
  - Erosion



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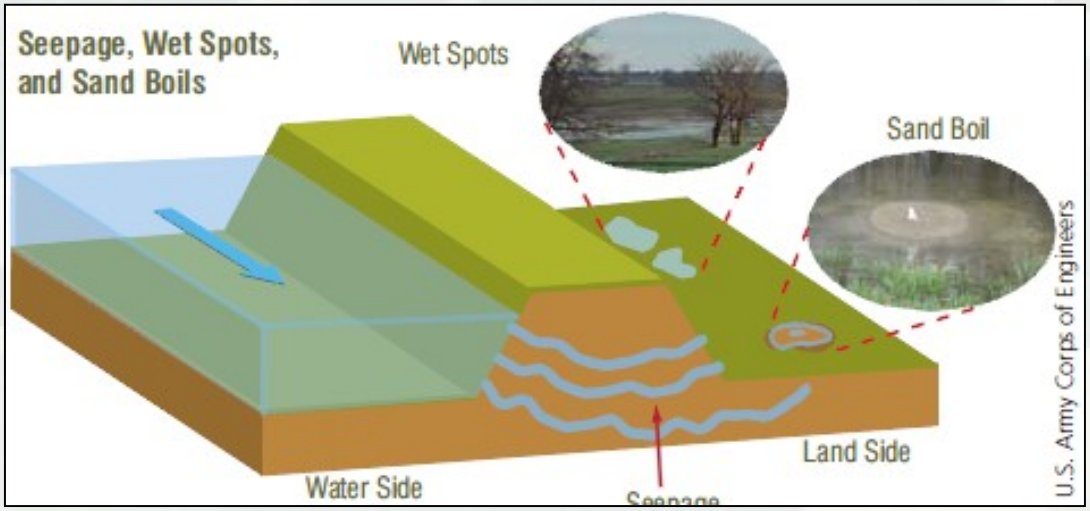
Other signs of trouble

- Levee inspectors assess levee conditions annually to identify potential problems
  - Unwanted vegetation and debris
  - Encroachments
  - Slope stability
  - Erosion
  - Settlement
  - Seepage
  - Critters



3. Risks associated with flooding vary.

Questions to ask about your local levees

- Where are nearby levees located?
- What size flood are the levees designed for?
- What areas are most likely to flood if levee is overtopped or breached?
- What is the elevation of my home relative to these flooded areas?

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Questions to ask about your local levees

- Where are nearby levees located?
- What size flood are the levees designed for?
- What areas are most likely to flood if levee is overtopped or breached?
- What is the elevation of my home relative to these flooded areas?
- What is the condition of the levees?
- How well have the levees performed historically?
- How much time would I have to evacuate and what are the routes?

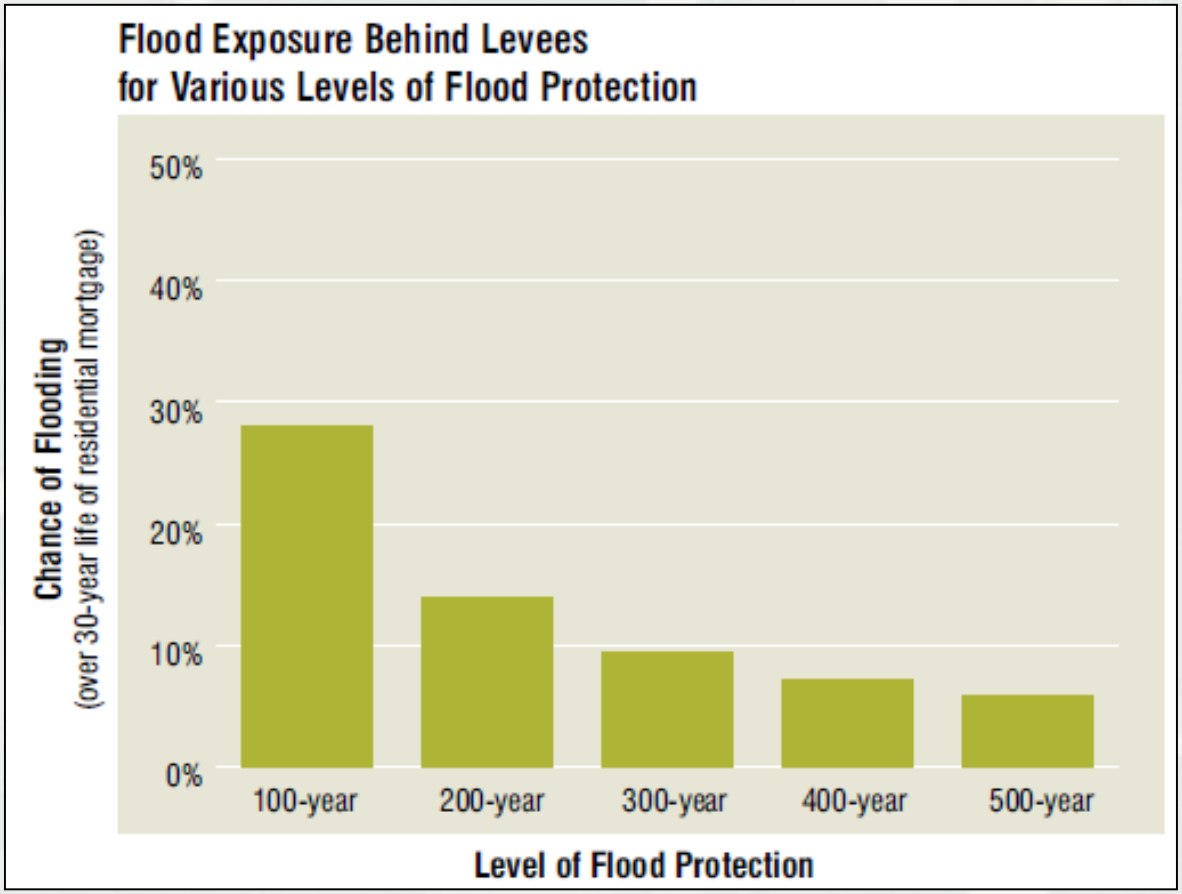
3. Risks associated with flooding vary.

Assessing your level of risk

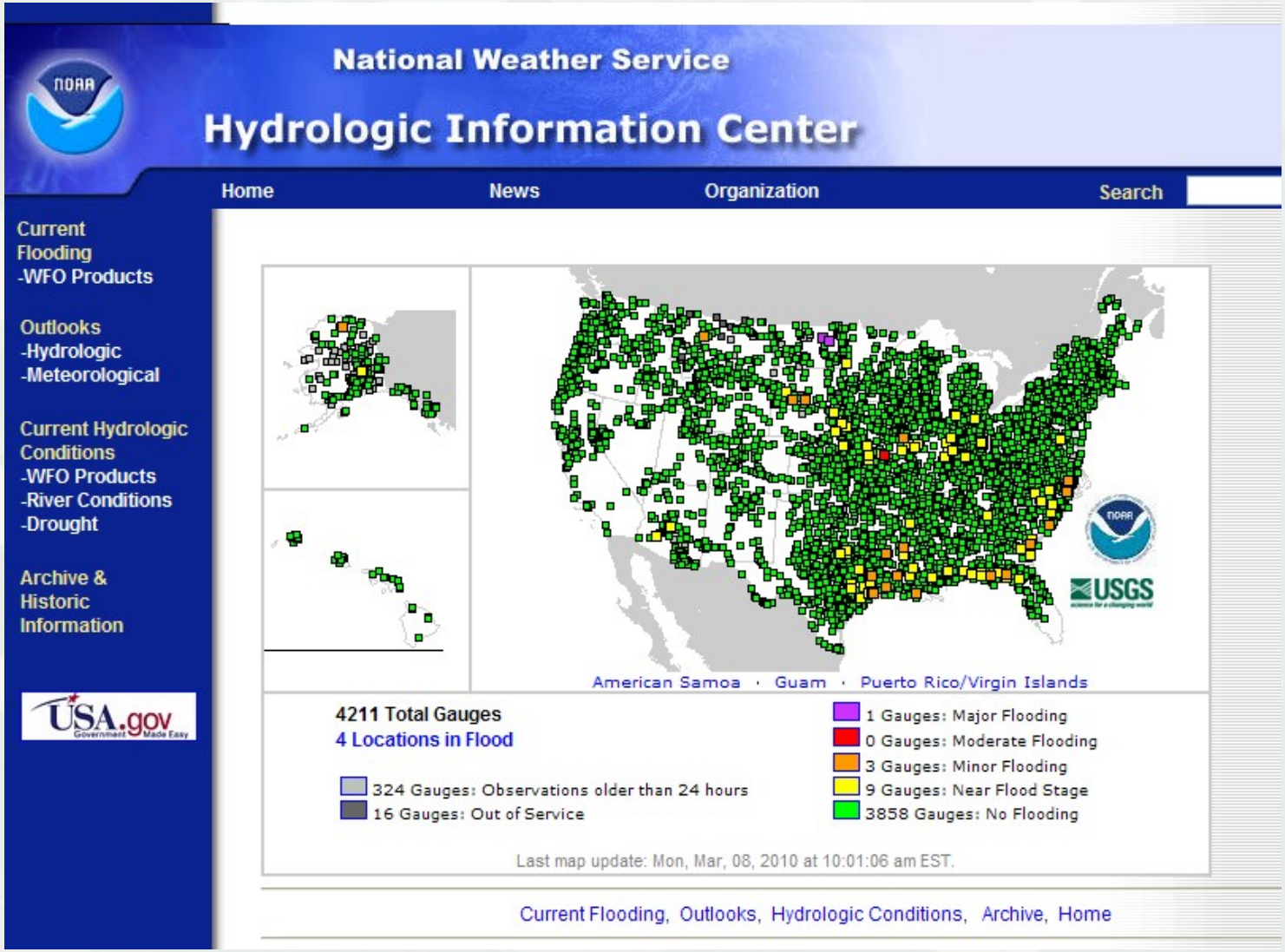
- Includes two major components
  1. The probability of a particular sized flood
  2. The potential loss of your property, job, and life

3. Risks associated with flooding vary.

Levees and the probability of flooding

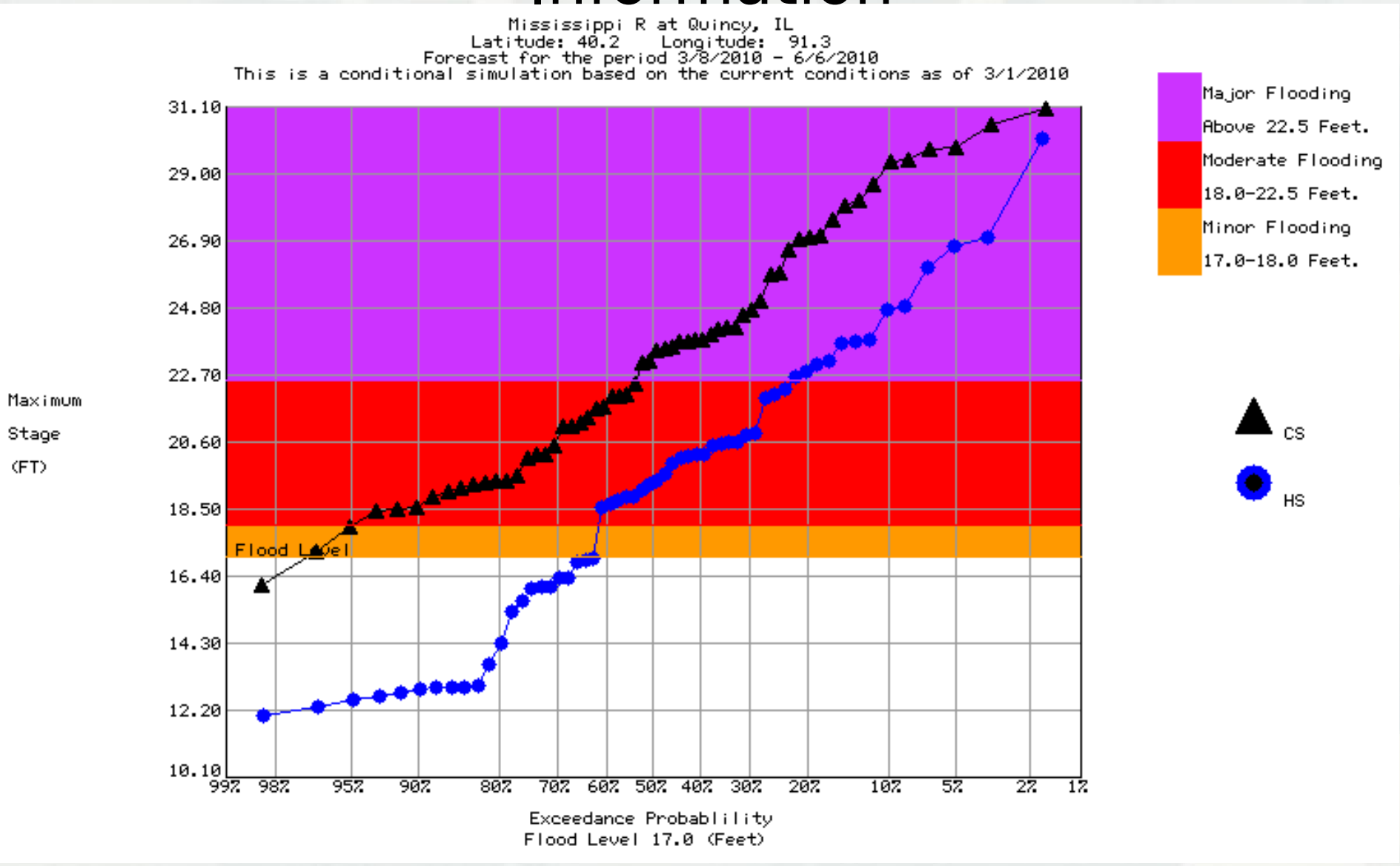


Levees and the probability of flooding



http://www.weather.gov/hic/xindex.php

National Weather Service Flood Information



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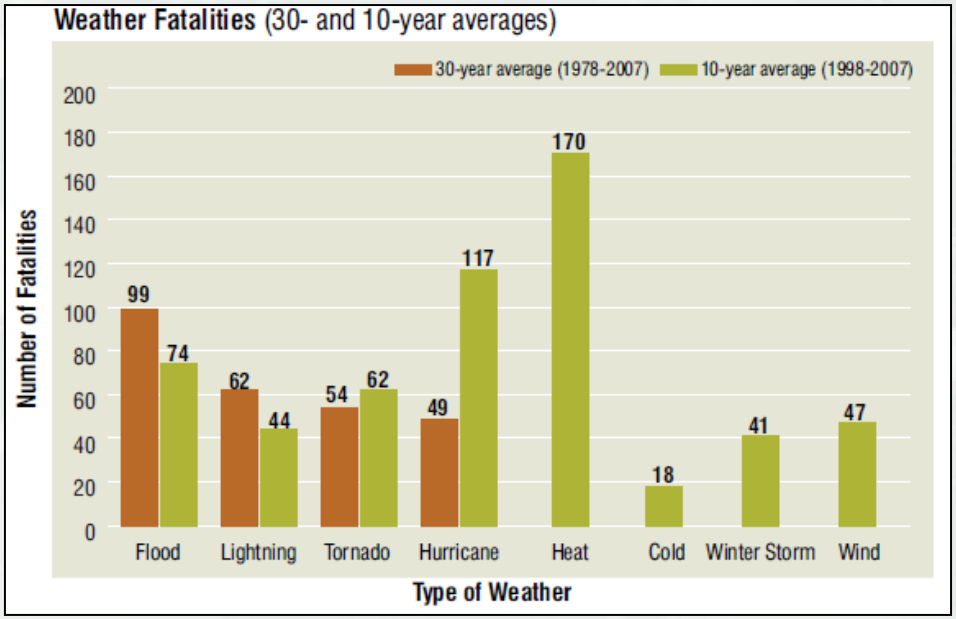
National Weather Service Flood Information

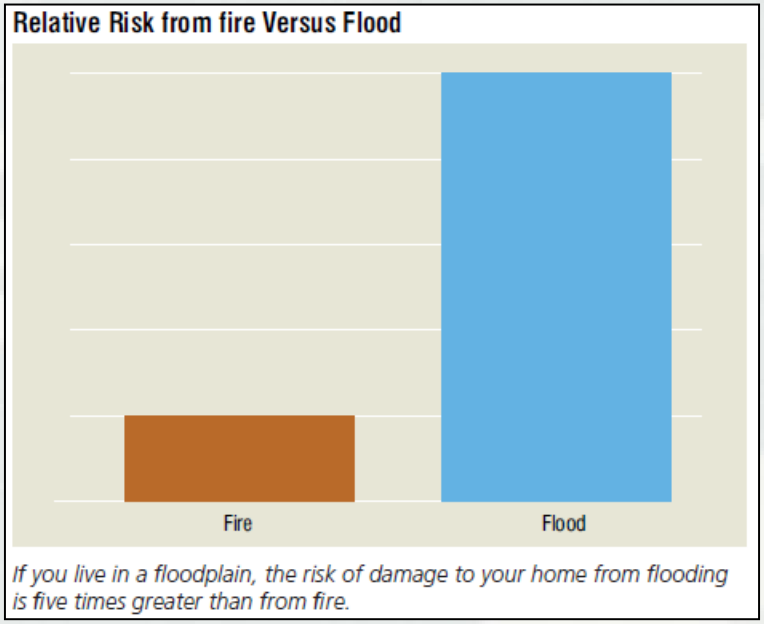
22.5	Major flooding begins.
22.1	Bonansinga Drive at Bob Bangert Park begins to flood.
22.0	This is a critical stage for the Drainage Districts: Lima Lake Drainage District (Left Bank) 15 to 20 miles above Quincy 13000 acres flood. Union Town (Right Bank) 4 to 8 miles above Quincy 5000 acres flood. Fabius River (Right Bank) 5 miles above to 4 miles below Quincy 14000 acres flood. South Quincy (Left Bank) 1 to 9 miles below Quincy 5500 acres flood.
21.1	In LaGrange, the entrance to a parking lot at the Mark Twain Casino begins to flood.
21.0	Critical stage for Indian Grave Drainage District on Left Bank, 3 to 15 miles above Quincy. 17,700 acres are flooded.
20.0	The Clat Adams Bicentennial Park, just north of the Memorial Bridge, begins flooding.
19.0	Quincy Parks, including All America, Sid Simpson, and Bobbangert Parks north of Broadway, begin flooding.
18.6	Railroad lines at several locations above Quincy become indundated.
18.5	Urban damage (one basement) begins in LaGrange. CB&Q Railroad main line, 10 to 16 miles above Quincy begins to flood.
18.0	Moderate flooding begins.
17.0	Urban damage begins at Quincy. Railroad line 6 miles West of Quincy begins to flood. Minor flooding begins.
15.0	Riverside campsites south of Quincy begin to flood.
14.0	Unprotected bottomlands flood on both sides of the river above and below the gage.

3. Risks associated with flooding vary.

So how safe are you?

- There is no definitive answer for this
- Important to understand the risks now and take action to reduce them




Relative Risk from fire Versus Flood
Fire
Flood
If you live in a floodplain, the risk of damage to your home from flooding is five times greater than from fire.

4. Actions taken now will save lives and property.

How communities can reduce flood risk

- Buy out properties in flood-prone areas
- Flood proof buildings
- Urge homeowners to purchase flood insurance
- Maintain levees in good working condition
- Change zoning ordinances/building codes
- Have flood warning systems/evacuation plans
- Provide technical and $ assistance

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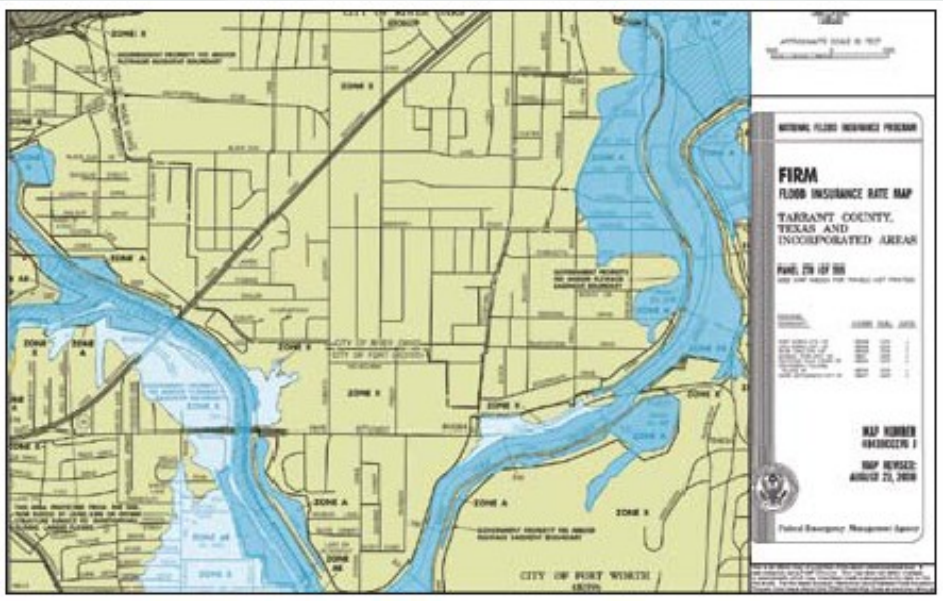
What about flood insurance?

- Anyone living behind a levee should have flood insurance
- Standard homeowner's policy doesn't cover flood damage
- Federal [illegible] only a loan



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What you can do in advance

- Prepare for a flood
  - Purchase flood insurance
  - Identify local agency responsible for flood notification
  - Determine how local emergency response plan is broadcast
  - Prepare emergency kit
  - Find out where to get sandbags

4. Actions taken now will save lives and property.

What you can do in advance

- Prepare your home
  - Elevate your furnace, water heater, etc.
  - Install check valves in sewer traps
  - Seal basement walls
  - Put valuables on upper floor

4. Actions taken now will save lives and property.

What you can do in advance

- Prepare for evacuation
  - Make list of items to take with you
  - Learn your area's evacuation route
  - Identify official shelter locations

4. Actions taken now will save lives and property.

What to do during a flood watch or warning

- Listen to radio/TV, check internet (NWS)
- Check for instructions from Management Agency
- Locate your emergency kit
- Place sandbags

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What to do during a flood watch or warning

- Listen to radio/TV, check internet (NWS)
- Check for instructions from Emergency Management Agency
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- Move valuables to higher locations
- Turn of electricity and gas
- Move to a higher location if needed
- Leave immediately if told to do so

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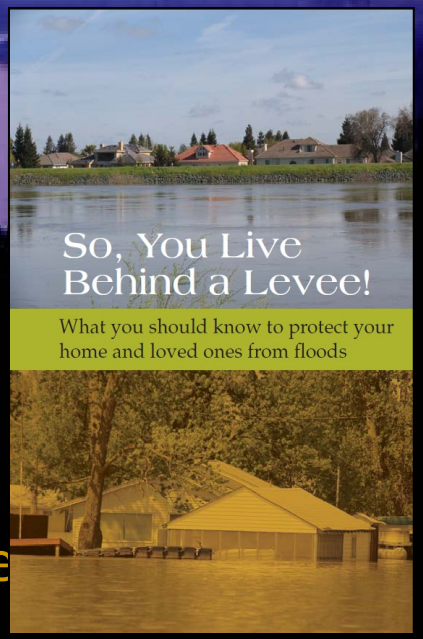
Questions?



http://www.asce.org/files/pdf/SoYouLiveBehindLevee
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